Hearing Aids Based on Models of Cochlear Compression Using Adaptive Compression Thresholds

ABSTRACT OF THE DISCLOSURE

In a hearing amplification device adapted to receive a sound signal, the hearing amplification device having at least one channel configured to receive an input representative of said sound signal, the improvement comprising the channel being further configured to provide (1) linear gain for an input representative of a portion of the sound signal having a sound level less than a compression threshold, (2) rapid compressive gain for an input representative of a portion of the sound signal having a sound level greater than the compression threshold, wherein the rapid compressive gain is less than the linear gain, and (3) adaptive control of the compression threshold. Preferably the rapid compressive gain is instantaneous. Adaptive compression threshold control may be achieved in response to a user input and/or to sound signal changes. By adaptively controlling the compression threshold, performance of the device can be optimized to match its environment.